

SESSION PROGRAM - IVESC 2000

Time	Paper No.	TITLE	AUTHOR(S)	AFFILIATION
Monday 10 July 2000				
8:00 - 8:15	Welcome by Conference Chair: Mr. Edwin G. Wintucky, NASA Glenn Research Ctr.			
8:15 - 9:00	Keynote Address: <i>Thermionic Cathodes - The State of the Art</i> Dr. Michael C. Green, Comm. & Power Industries			
Session A(1)		<i>Electron Emission Phenomena I</i>	<i>Chairperson: S. Yamamoto (Univ. of Tsukuba)</i>	
9:00 - 9:30	A-1	Modeling and Understanding of Work Functions for Barium Dispenser and Scandate Cathodes (Invited)	W. Mueller	Research 2000, Inc., U.S.A.
9:30 - 9:50	A-2	Modeling of life deterioration by ion bombardment of a dispenser cathode coated with a Ir/W film	T. Higuchi, ¹ S. Yamamoto, H. Kudo, ² and H. Murata ¹	¹ Toshiba Corp., Japan ² Univ. Of Tsukuba, Japan
9:50 - 10:10	A-3	The atomic arrangement model for ZrO/W(100) low work function surface	H. Nakane, S. Kawata, N. Miyamoto, and H. Adachi	Muroran Inst. of Tech., Japan
Session A(2)		<i>Electron Emission Phenomena II</i>	<i>Chairperson: I. Kravinsky (NASA G.R.C.)</i>	
10:30 - 10:50	A-4	Steady-state electron emission from semiconducting cathodes	G. L. Bilbro	North Carolina State Univ., USA
10:50 - 11:10	A-5	Si Based Quasi-Planar Self-Aligned Electron Emission Array	Dazhong Zhu ¹ and Jiahua Zhu ²	¹ Zhejiang University, China; ² Motorola Inc., USA
11:10 - 11:30	A-6	Local tunneling barrier height observations of monolayer graphite on Pt(111)	Y. Yamada, Y. Ogiwara, H. Kozakzi, S. Yagyu, M. Sasaki, and S. Yamamoto	Univ. of Tsukuba, Japan
11:30 - 11:50	A-7	Phase Transition (Condensed Matter – Dense Plasma) Electron Emission	V. E. Ptitsin	Inst. for Analytical Instrum. of RAS, Russia
Session B(1)		<i>Field Emission I Field Emitter Arrays</i>	<i>Chairpersons: J. Mintmire(Naval Res. Lab.) C. Spindt (SRI Int'l)</i>	
13:00 - 13:30	B-1	High Performance Field Emitter Tips and Arrays (Invited)	F. M. Charbonnier, W. A. Mackie, and R. Hartman	Linfield Research Inst., USA
13:30 - 13:50	B-2	Cold cathodes prepared using ion etching	S. Korenev	STERIS Corp., USA
13:50 - 14:10	B-3	Anomalously Low Field Emission Threshold from Al Oxide Coated Si Field Emitters	V. V. Zhirnov, ¹ A. N. Alimova, ² and J. J. Hren ¹	¹ North Carolina State Univ., USA; ² CSIC, Spain
14:10 - 14:30	B-4	Fabrication of ring gate field-effect-transistor-structured silicon field emitter arrays	Y. Sato ¹ , T. Matsukawa, M. Nagao, S. Kanemaru, J. Itoh, ² K. Hiranaka, N. Wada, and T. Nakai ¹	¹ Matsushita-Kotobuki Elec. Ind., Japan; ² Electrotech. Lab., Ibaraki, Japan
14:30 - 14:50	B-5	Empirical relation between slope and intercept of Fowler-Nordheim plot for deposited field emitters: Seppen-Katamuki chart for estimation of field emitters	Y. Gotoh, H. Tsuji, and J. Ishikawa	Kyoto Univ., Japan
Session B(2)		<i>Field Emission II Field Emitter Arrays</i>	<i>Chairpersons: K. Jensen (NRL) Y. Wang (Beijing Vac. Elec. Res.)</i>	
15:10 - 15:30	B-6	Fabrication of iridium field emitter arrays	B. R. Chalamala, Y. Wei, G. Rossi, B. G. Smith, and R. H. Reuss	Motorola, Inc., USA

Time	Paper No.	TITLE	AUTHOR(S)	AFFILIATION
15:30 - 15:50	B-7	Measurement of the increase in field emission current caused by a laser and its dependence on amplitude modulation of the radiation	<u>M. Brugat</u> ¹ , M. S. Mousa ² , E. P. Sheshin ³ , and M. J. Hagmann ¹	¹ Florida Int'l. Univ., USA; ² Mu'tah University, Jordan; ³ MIPT, Russia
15:50 - 16:10	B-8	Evaluating the performance of consumer-priced field-emitting inks and low-cost triode structures	<u>A. P. Burden</u> , H. E. Bishop, M. Brierley, M. K. Bull, J. M. Friday, C. Hood, P. G. A. Jones, A. Y. Khazov, W. Lee, R. J. Riggs, and R. A. Tuck	Printable Field Emitters, Ltd., U.K.
16:10 - 16:30	B-9	Field emission characteristics of iridium oxide tips	<u>B. R. Chalamala</u> , E. Sosa, and R. H. Reuss	Motorola, Inc., USA
16:50 - 17:10	B-10	Liquid metal multiple tip field emission cathode of the new type	O. P. Korovin, <u>E. O. Popov</u> , S. S. Karatetskii, V. N. Shrednik	A.F. Ioffe Physicotech. Inst. of RAS, Russia
16:50 - 17:10	B-11	Field emission of metallic needle crystals	I. V. Zakurdaev, N. P. Ovsjannikov, V. M. Gennadjev, <u>U. V. Linnik</u> , N. N. Chadaev	Ryazan State Radioeng. Acad., Russia

Tuesday 11 July 2000

TOUR of KENNEDY SPACE CENTER, Cape Canaveral, FL

Wednesday 12 July 2000

Session C		<i>Thermionic Emission I Advanced Cathode Development</i>	<i>Chairperson: G. Gaertner (Philips Res. Lab.)</i>	
8:00 - 8:20	C-1	Surface coverage, electron emission, and dynamic substrate shielding during ion bombardment of thermionic dispenser cathodes	<u>R. Cortenraad</u> , A.W. Denier van der Gon, H.H. Brongersma, ¹ A. Manenschijn, ² G. Gaertner, D. Raasch ³	¹ Eindhoven Univ. of Tech., The Netherlands; ² Philips Components, The Netherlands; ³ Philips GmbH, Germany
8:20 - 8:40	C-2	Interaction of Sc and O on W	<u>A. Shih</u> , J. E. Yater, C. Hor and R. Abrams	Naval Res. Lab., USA
8:40 - 9:00	C-3	Reservoir Cathodes Revisited	<u>B. K. Vancil</u> ¹ and E. G. Wintucky ²	¹ FDE Associates, Inc., USA; ² NASA Glenn Res. Ctr., USA
9:00 - 9:20	C-4	N-Doped CVD Diamond films as a low temperature thermionic-Field electron source	<u>F. A. M. Köck</u> , J. M. Garguilo, B. Brown, R.J. Nemanich	North Carolina State Univ., USA
9:20 - 9:40	C-5	Chemical states of lanthanum in carbonized La ₂ O ₃ -Mo thermionic cathode materials	<u>J. Wang</u> , M. Zhou, ¹ Y. Wang, ² Z. Nie, J. Zhang, and T. Zuo ¹	¹ Beijing Polytech. Univ., China; ² Beijing Vac. Elec. Res. Inst., China

Session D		<i>Thermionic Emission II Oxide Cathodes</i>	<i>Chairperson: H. Nakanishi (Consultant)</i>	
10:00 - 10:20	D-1	Direct determination of electrical conductivity of oxide cathodes	<u>G. Gaertner</u> , P. Janiel, and D. Raasch	Philips Res. Lab., Germany
10:20 - 10:40	D-2	Initial chemical transport of reducing elements and chemical reactions in oxide cathode base metal	<u>J-M. E. Roquais</u> , F. Poret, R. le Doze ¹ , P. Dufour ²	¹ Thomson Multimedia, France; ² Univ. De Bourgogne, France
10:40 - 11:00	D-3	Mass spectroscopy and gas poisoning of oxide cathodes	<u>D. Raasch</u> , G. Gaertner, M. Pralle, and K. Schlageter	Philips Res. Lab., Germany
11:00 - 11:20	D-4	Improvement in Life of Oxide Cathode through Ni-Coating on Cathode Basemetal	<u>Y. C. Kim</u> , K. N. Joo, J. S. Choi, and H. G. Yang.	Samsung SDI, Korea

Time	Paper No.	TITLE	AUTHOR(S)	AFFILIATION
Session E(1)		<i>Thermionic Emission III Diagnostics & Applications</i>	<i>Chairperson: A. Shih (NRL)</i>	
12:40 - 13:00	E-1	Emission diagnostic methods for thermionic cathode life prediction in production devices and in space applications	G. V. Miram, M. J. Cattelino, <u>L. R. Falce</u> , T. J. Grant and M. C. Green	Comm. & Power Ind., USA
13:00 - 13:20	E-2	TriService/NASA Cathode Life Test Facility	<u>L. Dressman</u> , L. Williams ¹ , and R. Justice ²	¹ Naval Surf. Warfare Ctr., USA; ² Tech. Serv. Corp., USA
13:20 - 13:40	E-3	Thermionic Emission Microscopy in the Scanning Electron Microscope	P. B. Sewell	LAB-6, Canada
13:40 - 14:00	E-4	Promotion of the Emission and Suppression of the Modulation Anode Current of High Power CW Klystrons Installing M-Type Cathode.	S. Isagawa	High Energy Accel. Res. Corp., Japan

Session E(2)		<i>Thermionic Emission IV Diagnostics & Applications</i>	<i>Chairperson: L. Falce (Consultant)</i>	
14:20 - 14:40	E-5	Advanced Cathodes for Use in Cathode-Ray Devices.	<u>O. Maslennikov</u> , B. Katsnelson, A. Tymonin	SSPE "TORIY", Russia
14:40 - 15:00	E-6	Stratum-like structured metal alloy iridium-lanthanum and rhenium-thorium cathodes	<u>B. Ch. Djubua</u> and O. V. Polivnikova	SRPC Istok, Russia
15:00 - 15:20	E-7	Multicomponent metal alloy cathodes with iridium and cerium	<u>O. K. Kultashev</u> , A. P. Makarov, and S. E. Rozhkov	SRPC "Istok", Russia

15:30 - 17:30	POSTER SESSION		Chairpersons: J. Tarter (Semicon Assoc.) J. Paff (SpectraMat, Inc.)	
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Thursday 13 July 2000

Session F		<i>Field Emission III Emitter Characterization I</i>	<i>Chairperson: I. Brodie (SRI Int'l)</i>	
8:00 - 8:30	F-1	Performance of zirconium carbide in FEAs and as single emitters at high currents (Invited)	<u>W. A. Mackie</u> , K. S. Lee, T. Xie, and P. R. Davis	Linfield Res. Inst., USA
8:30 - 8:50	F-2	Influence of gases on FEA observed by an emission microscope	<u>H. Nakane</u> , K. Yamane, Y. Mutoh, N. Miyamoto, and H. Adachi	Muroran Inst. of Tech., Japan
8:50 - 9:10	F-3	Study of field emission characteristics of carbon with the scanning atom probe	<u>M. Watanabe</u> , K. Tanaka, O. Nishikawa, ¹ T. Yamaguchi, ² N. Choi, and H. Tokumoto ³	¹ Kanazawa Inst. Of Tech., Japan; ² Mech. Eng. Lab. Tsukuba, Japan ³ Joint Res. Inst. For Atom Tec., Japan;
9:10 - 9:30	F-4	Field emission properties of nano protrusion covered with liquid metal	<u>Y. Saito</u> , K. Yado, ¹ H. Nakane, and H. Adachi ²	¹ Tohken Co., Ltd., Japan; ² Muroran Inst. Of Tech., Japan;
9:30 - 9:50	F-5	A Theoretical Study of Photon Assisted Field Emission from a Silicon Emitter	<u>K. L. Jensen</u> , Y. Y. Lau, and D. S. McGregor	Naval Res. Lab., USA

Session G		<i>Field Emission IV Carbon-Based Emitters</i>	<i>Chairpersons: R. Z. Bakhtizin (Bashkir State Univ.)</i>	
10:10 - 10:40	G-1	Electron Transport Properties of Carbon Nanotubes (Invited)	<u>J. W. Mintmire</u> ¹ and C. T. White ^{1,2}	¹ Naval Res. Lab., USA ² Washington St. Univ., USA
10:40 - 11:00	G-2	Emission Properties of Thin Diamond-like Films	Yu. M. Yumaguzin, S. A. Pshenichnyuk, and <u>R. Z. Bakhtizin</u>	Bashkir St. Univ., Russia

Time	Paper No.	TITLE	AUTHOR(S)	AFFILIATION
11:00 - 11:20	G-3	A study of the initial stage of emission from flat amorphous carbon cathode	D. P. Bernatskii, <u>A. V. Chernyshev</u> , V. I. Ivanov-Omskii, V. G. Pavlov, and T. K. Zvonareva	A.F. Ioffe Physicotech. Inst. of RAS, Russia
11:20 - 11:40	G-4	Potentials of technologies for thin carbon nanocluster films with efficient electron field emission	G. V. Torgashov, N. I. Sinitsyn, Yu. V. Gulyaev, S. A. Knyazev, S. A. Ryabushkin, and I. G. Torgashov	Inst. of Radio Eng. and Elect. of RAS, Russia

Session H(1)		<i>Field Emission V Applications & Devices</i>	<i>Chairpersons: M. Green (Comm. & Pwr. Ind.) F. Charbonnier (Linfield Res. Inst.)</i>	
13:00 - 13:30	H-1	FEA Cathodes in Helix TWT's (Invited)	D. R. Whaley, B. Gannon, <u>M. A. Basten</u> , J. S. Duthie, ¹ and C. A. Spindt ²	¹ Northrup-Grumman, Inc., USA; ² SRI International, USA
13:30 - 13:50	H-2	Development of electron devices incorporating nanocrystalline graphite field emitters	<u>R. J. Espinosa</u> ¹ and H. H. Busta ²	¹ Microwave Power Tech., USA; ² Sarnoff Corp., USA
13:50 - 14:10	H-3	MOSFET-Controlled Single Tip Emitter	<u>J. D. Lee</u> , C. W. Oh, ¹ S. J. Kwon, ² and B. G. Park ¹	¹ Seoul Nat. Univ., Korea; ² Kyungwon Univ., Korea
14:10 - 14:30	H-4	Thin film microfabricated hydrogen ion sources	<u>R. H. Reuss</u> and B. R. Chalamala	Motorola, Inc., USA
14:30 - 14:50	H-5	Cold Cathodes for Magnetrons	V. I. Makhov	Litton Systems, Inc., USA

Session H(2)		<i>Field Emission VI Emitter Characterization II</i>	<i>Chairpersons: W. Ohlinger (Bettis A.P.L.) W. Mackie (Linfield Res. Inst.)</i>	
15:10 - 15:30	H-6	Field emission microscopy studies on the growth and control of nano-protrusions on field emitter tips	<u>R. H. Reuss</u> , K. A. Dean, and B. R. Chalamala	Motorola, Inc., USA
15:30 - 15:50	H-7	Emission Characterization of Nanostructured Carbon Field-Emission Cathodes	<u>N. N. Chubun</u> , A. G. Chakhovskoi, C. E. Hunt, ¹ A. N. Obratsov, and A. P. Volkov ²	¹ Univ. of Cal. at Davis, USA; ² Moscow State Univ., Russia
15:50 - 16:10	H-8	Emission-uniformity improvement and work-function reduction of Si tips by ethylene gas exposure	<u>T. Matsukawa</u> , M. Nagao, S. Kanemaru, H. Yokoyama, and J. Itoh	Electro-Tech. Lab., Japan
16:10 - 16:30	H-9	Field emission, PEEM, and FEEM measurements of emitting sites of MPCVD grown nanodiamond films	<u>J. M. Garguilo</u> , F. A. M. Köck, B. Brown, R.J. Nemanich	North Carolina State Univ., USA
16:30 - 16:50	H-10	Cathode field emission units for light sources for various applications	A. L. Suvorov, M. O. Popov, A. V. Karpov, G. V. Torgashov, M. A. Kozodaev, ¹ Yu. V. Gulyaev, N. I. Sinitsin ²	¹ SSC RF Inst. for Theoret. and Exp. Phys.; ² Inst. for Radiotech. and Elect. of RAS

POSTERS

FUNDAMENTALS

	P-1	Entropy ideology for evaluation of quality and prediction of longevity of cathode units and electron guns	<u>V. N. Ilin</u> , V. A. Khmara, and D. V. Khmara	SSPE "TORIY", Russia
	P-2	Simulation of electron beam forming systems	V.F. Tregubov	St. Petersburg St. Elect. Eng. Univ., Russia

Time	Paper No.	TITLE	AUTHOR(S)	AFFILIATION
	P-3	Study on Enhanced Photoemission of Ag-O-Cs Photocathode with Internal Field-Assisted Structure	<u>Q. F. Zhang</u> , W. M. Liu, Z. Q. Xue, and J. L. Wu	Peking University, China
	P-5	Analysis and optimization of the regimes of radiation load of field emission cathodes	<u>A. L. Suvorov</u> , A. G. Zaluzhnyi, E. V. Davydov, M. O. Popov	¹ SSC RF Institute for Theoretical and Experimental Physic, Russia
	P-6	Pulsed Deposition by Dielectrophoresis For Field Emission Applications	D. Kang, V. V. Zhirnov, G. J. Wojak, J. J. Cuomo, and J. J. Hren	North Carolina State Univ., USA
	P-7	Study on GaAs NEA photocathode by Quantitative Angular-dependent XPS	G. Wang, W. Yang, and B. Chang	Nanjing Univ. of Sci. & Tech., China
	P-8	M-coat morphology changes with cathode activation and aging	<u>William Tighe</u> , Robert T. Longo and William Slowik	Hughes Electron Dynamics, U.S.A.
	P-9	Resonant features of the tunnel current measured by STM in air	I. Zakourdaev, D. Firsov	Ryazan State Radioengineering Academy, Ryazan 391000, Russia
	P-10	Asymmetrical change of the thermoemission current from a vicinal surface at the electromigration	I. Zakourdaev, V. Vitukhin, S. Sadofyev	Ryazan State Radioengineering Academy, Russia
	P-11	Diffusion and surface segregation of doped rare-earth oxide from refractory metals	<u>J. Wang</u> , ¹ Y. Wang, ² M. Zhou, Z. Nie, J. Zhang, and T. Zuo ¹	¹ Beijing Polytech. Univ., China; ² Beijing Vac. Elec. Res. Inst., China
	P-12	The question of transition of autoelectronic emission to explosive emission of electrons	S. Korenev	STERIS Corporation, USA
	P-13	Surface condition of scandate impregnated cathodes	<u>S. Sasaki</u> , T. Yaguchi, Y. Nonaka, S. Taguchi, and M. Shibata	Hitachi, Ltd., Japan
	P-14	Electron emission from a nitrogen-doped diamond-based electron emitter fabricated by sintering technique	<u>T. Yamada</u> and A. Sawabe	Aoyama-Gakuin Univ., Japan;
	P-15	Light intensity and temperature dependence of field emission current from p type Si single emitter	<u>T. Yoshimoto</u> , T. Iwata, ¹ S. Kikuchi, and N. Yokgawa ²	¹ Hokkaido Tokai Univ., Japan; ² Kyoto Semicond. Corp., Japan
	P-16	Simulation of devices generating microwave and terahertz radiation by resonant laser-assisted field emission [Moved from H-3]	M. J. Hagmann, M. S. Mousa, and M. Brugat	Florida Int'l. Univ., USA
	P-17	A Study of Technology On-line Measuring Spectral Response of Photocathodes	<u>Y. Qian</u> , Z. Zong, B. Chang, G. Wang, and R. Fung	Nanjing Univ. of Sci. & Tech., China
	P-18	Effective field ion source based on matrix carbon fiber emitter	E. P. Sheretov, ¹ <u>E. P. Sheshin</u> , ² N. P. Ovsyannikov, A. E. Malutin ¹	¹ Ryazan State Radio Tech. Univ.; ² Moscow Inst. of Phys. and Tech.
	P-19	Distortion of the shape of short electron current pulse during its movement through the interelectrode space.	<u>A. V. Zinoviev</u> and T. Usmanov	Acad. of Sci. of Uzbekistan, Uzbekistan
	P-20	Spectral Matching Factors between GaAs and S25 Photocathodes and Reflective Radiation of Objects	<u>W. Li</u> and B. Chang	Nanjing Univ. of Sci. & Tech., P.R. China
	P-21	The control by the number of the thermo-field microprotrusions on the field emitter surfaces	<u>O. L. Golubey</u> , V. N. Shrednik, and Yu. A. Vlasov	A.F. Ioffe Physicotech. Inst. of RAS, Russia

Time	Paper No.	TITLE	AUTHOR(S)	AFFILIATION
	P-22	Chaotic Model of Fluctuations in Field Emission	<u>V. M. Anikin</u> and A. F. Goloubentsev	Saratov State Univ., Russia
	P-23	Oxygen Species and Properties on the Surface of Mo-La ₂ O ₃ Cathode	<u>Z. Nie</u> , T. Zuo, M. Zhou, Y. Wang, J. Wang, J. Zhang	Beijing Polytech. Univ., P. R. China
	P-24	Progress toward Understanding the Thermionic Emission Equation	Robert T. Longo	Hughes Electron Dynamics, U.S.A.

APPLICATIONS

	P-25	Prototypes Using Various Types of Electron Sources Modulated by a Laser	<u>M.S. Mousa</u> ¹ , M. Brugat, ² E.P. Sheshin, ³ and M.J. Haggmann ²	¹ Mu'tah University, Jordan; ² Florida Int'l. Univ., USA; ³ Moscow Inst. of Phys. and Tech., Russia
	P-26	Selective deposition of electron field emission films for the fabrication of addressable cathodes	A. A. Bliablin, A. T. Rakhimov, B. A. Samorodov, N. V. Suetin, ¹ and <u>A. Silzars</u> ²	¹ High Technologies, Ltd., Russia; ² Northlight Displays, USA
	P-27	Low temperature and cold emission of scandate cathodes	<u>G. Gaertner</u> , P. Geittner, and D. Raasch	Philips Res. Lab., Germany
	P-28	New Type Thermal Field Cathode for High Power Density Submicron Electron Beam Sources	<u>V. E. Ptitsin</u> and S. V. Maximov	Inst. for Analytical Instrum. of RAS, Russia
	P-29	"Electron Quasilaser" or a Low Energy High Power Density Submicron Electron Beam Source	<u>V. E. Ptitsin</u> ¹ and V. F. Tregubov ²	¹ Inst. for Analytical Instrum. of RAS, Russia; ² St. Petersburg State Elec. Eng. Univ., Russia
	P-30	Multiemitter Cathode Heater Units for Powerful Vacuum Microwave	O. Maslennikov and A. Luchin.	SSPE "TORIY", Russia
	P-31	RF to DC energy converter electron tubes for SPS application	K. Sugimori	Kurume Nat. Col. of Tech., Japan
	P-32	Field emission from self assembled semiconducting nanostructures field emitters arrays	Dilip S. Joag	University of Pune, India
	P-33	Quasidirectly heated cathode for magnetrons	<u>B. Ch. Djubua</u> , O. V. Polivnikova, H. Hu and K. Park	SRPC "Istok", Russia
	P-34	Electron emission out of ferroelectric materials	A.S.Sidorkin	Voronezh State Univ., Russiay
	P-35	Enhancement of a highly efficient space TWT	M. Singh and <u>B. Singh</u>	Herald Elect., Ltd., India
	P-36	Simulation of microscopic inhomogeneities of a thermionic emitter	<u>M.D. Nykerk</u> , P. Kruit, ¹ R. Harthoorn ²	¹ Delft Univ. of Tech., The Netherlands; ² Philips Display Comp., The Netherlands
	P-37	Relation Between Self-Excitation Regimes Of The M-Type Amplifiers And Cathode Emission Parameters	V. N. Ilin	SSPE "TORIY" , Russia

CARBON-BASED FIELD EMITTERS

	P-38	Electric Field Enhanced Secondary Electron Emission From B-Doped Diamond Membrane.	N. N. Dzbanovsky, P. A. Minakov, A. F. Pal, <u>N. V. Suetin</u> ¹ , E. A. Poltoratsky, G. S. Richkov , E. A. Il'ichev, S. A. Gavrilov ²	¹ Inst. of Nuc. Phys., Moscow State Univ., Russia ² Zelenograd's Phys. Problems Inst., Russia
	P-39	Electron Transmission Studies of Diamond Films	<u>J.E. Yater</u> , A. Shih, J.E. Butler, and P.E. Pehrsson	Naval Res. Lab., USA

Time	Paper No.	TITLE	AUTHOR(S)	AFFILIATION
	P-40	Element Composition of a Nanoscale Field Emission Array Formed by Self-Organization in Porous Anodic Aluminum Oxide	<u>N. I. Tatarenko</u> ¹ and A.M. Mozalev ²	¹ Russian Aerospace Agency, Russia; ² Byelorussian State Univ. of Informatics & Radioelectr., Belarus
	P-42	Field emission properties of multi-walled carbon nanotubes	X. Li, W. Liu, Z. Shi, Z. Jin, and Z. Gu	Peking Univ., PRC
	P-43	Field electron emission from nanotube carbon structure grown by CVD method	<u>A. L. Musatov</u> , K. R. Izrael'yants, E. G. Chirkova, ¹ N.A.Kiselev, D. N. Zakharov, ² and E. F. Kukovitskii ³	¹ Inst. of Radioeng. and Elect. of RAS, Russia; ² Inst. of Cryst. of RAS, Russia; ³ Kazan Phys.-Tech. Inst., Russia
	P-44	New Carbon Nano-Crystalline Material for Field Emission Cathodes	A. A. Bliablin, A. Pilevsky, A. T. Rakhimov, N. V. Suetin, M. A. Timofeyev, ¹ and <u>A. Silzars</u> ²	¹ High Tech., Ltd., Russia ² Northlight Displays, USA
	P-45	Field emission cathodes made from compressed carbon nanotubes	<u>M. Ding</u> , J. Feng, Z. Peng, Q. Chen, A. Cao, and D. Wu	Beijing Vac. Elec. Res. Inst., China
	P-46	Field emission from carbon nanocluster films in high current density conditions.	G. V. Torgashov., Yu. A. Grigoriev, N. I. Sinitsyn, Yu. V. Gulyaev, A. L. Suvorov, N. A. Bushuev, S. A. Knyasev	Inst. of Radioeng. and Elect. of RAS, Russia
	P-47	Analysis of the emitting surface configuration effect of nanodimensional edge carbon arrays on their field emission properties	Yu. F. Zakharchenko, N. I. Sinitsyn, Yu. V. Gulyaev	Inst. of Radioeng. and Elect. of RAS, Russia
	P-48	Calculating the field emission current from aligned carbon nanotubes	O. E. Glukhova, <u>A. I. Zhbanov</u> , ¹ N. I. Sinitsyn, and G. V. Torgashov ²	¹ Saratov State Univ., Russia; ² Inst. of Radioeng. and Elect. of RAS, Russia
	P-49	Studying the carbon nanotubes with chiral structure	O. E. Glukhova, <u>A. I. Zhbanov</u> , N. I. Sinitsyn, and G. V. Torgashov	¹ Saratov State Univ., Russia; ² Inst. of Radioeng. and Elect. of RAS, Russia
	P-50	Electron emission from nanocrystal diamond film	E. A. Ekimov, ¹ D. A. Mazalov, <u>A. F. Pal</u> , V. V. Pichugin, ² N. V. Suetin, ³ and V. V. Zhirnov ⁴	¹ Inst. for High Pressure Phys., Russia; ² Troitsk Inst. for Innovation and Fusion Res., Russia; ³ Moscow State Univ., Russia; ⁴ Semicond. Res. Corp., USA
	P-51	Electrophoresis of carbon powders for field emission applications	<u>A. S. Baturin</u> , K. N. Nikol'skij, E. P. Sheshin, R. G. Tchesov ¹ , R. M. Ammosov ² , A. G. Borisov, V. S. Korsakov, and L. A. Plavich ²	¹ Moscow Institute of Physics and Technology, Russia; ² State Scientific Research Institute of Physical Problems, Russia
	P-52	Alkali and rare earth metal doping of carbon materials to improve their field emission properties	<u>A. S. Baturin</u> , K. N. Nikol'skij, E. P. Sheshin, R. G. Tchesov ¹ , B. S. Borisov, E. P. Kirilenko, and A. Yu. Trifonov ²	¹ Moscow Institute of Physics and Technology, Russia; ² State Scientific Research Institute of Physical Problems, Russia